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Mr. John Grantham
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Department of Ecology
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FLUOR DANIEL, INC.

Date: October 14, 1992

Reference: Hanford Waste Vittrification Plant
DOE Contract DE-AC06-86RL10838
Fluor Contract 8457

Transmittal No.: WDOE-238

Dear Mr. Grantham:

TRANSMITTAL

We enclose 5 copy of the items listed below. These are issued per US-DOE request.

Response due to Fluor: N/A
Responds to: P30A PKG

| NUMBER | Rev. | Date | TITLE |
|----------------------------|------|----------|--|
| B-595-P-P30A SECTION 15196 | 0 | 10/12/92 | P30A CONNECTOR HEADS AND NOZZLES THIS ISSUE CONSISTS ONLY OF THE REVISION 1 DRAWING AND SPECIFICATION LIST, REVISION 1 OF THE CONNECTOR AND NOZZLE SUMMARY TABLES AND REVISION 0 OF SPECIFICATION SECTION SECTION 15196. REPLACE THE SPECIFICATION AND DRAWING LIST AND THE CONNECTOR AND NOZZLE SUMMARY TABLES PREVIOUSLY ISSUED IN FRP-467, DATED JULY 13, 1992 WITH THIS ISSUE. ADD SPECIFICATION SECTION 15196 TO THE PREVIOUSLY ISSUED SPECIFICATION PACKAGE IN FRP-467. THE DRAWINGS AND SPECIFICATION SECTIONS ISSUED IN FRP-467 ARE NOT BEING REISSUED. |

Distribution:

Reference: FRP-594, FUP-260
R. L. Long, DOE-RL, w/0
VPO/AME Corresp Cntrl Cntr, MSIN A5-10
(P30A PKG), w/0
P. Felise, WHC-RL (MSIN G6-16), w/1
- Environmental Data Management Center
(MSIN H4-44), w/1
D. Duncan, US EPA, Region X, w/0

Very truly yours,

Rosalee Cadenas for
R. S. Poulter
Project Director.

RSP:JMJ:1t



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PAGE NO. 9
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

MISCELLANEOUS CONNECTOR COMPONENT SUMMARY TABLE

| ITEM NO. | MATERIAL | DESCRIPTION | QTY | PKG NO. | DRAWING REFERENCE |
|--|----------|---|-----|---------|-------------------|
| MISCELLANEOUS VERTICAL CONNECTOR BLOCK INFORMATION | | | | | |
| 11 | 316L SS | 4" BLOCK, 3" INLET, 3" OUTLET (DIP TUBE) PART # H-2-32443-26 | 5 * | P11 | H-2-32440 |
| 12 | C-22 | 2" 3-WAY BLOCK, ADDITIONAL STANDARD BLANKS TO BE MACHINED AT A LATER DATE | 5 * | P06 | H-2-32427 |
| 13 | C-22 | 2" 3-WAY BLOCK, ADDITIONAL STANDARD BLANKS TO BE MACHINED AT A LATER DATE | 5 * | P11 | H-2-32427 |

* THE SUMMARY TOTALS ARE TYPICALLY ROUNDED TO THE NEXT HIGHEST INCREMENT OF FIVE (5)

U.S. DEPARTMENT OF ENERGY
Hanford Waste Vitrification Plant
Richland, Washington
DOE Contract DE-AC06-86RL10838

FLUOR DANIEL, INC.
Advanced Technology Division
Fluor Contract 8457

CONNECTOR HEADS AND NOZZLES
SPECIFICATION B-595-P-P30A

"APPROVED FOR CONSTRUCTION"

Revision No.: 1 Per CR# HWVP-0806

Issue Date: 10-12-92

APPROVED BY:

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10-6-92
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HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

MISCELLANEOUS CONNECTOR COMPONENT SUMMARY TABLE

| ITEM NO. | MATERIAL | DESCRIPTION | QTY | PKG NO. | DRAWING REFERENCE |
|-------------------------------|----------|---|-----|---------|-------------------|
| 2" VERTICAL CONNECTORS | | | | | |
| 1 | 304L SS | 2" BLOCK, ADDITIONAL STANDARD BLANKS TO BE MACHINED AT A LATER DATE | 10* | P11 | H-2-32420 |
| 3" VERTICAL CONNECTORS | | | | | |
| 3 | 304L SS | 3" BLOCK, 2" INLET, 2" OUTLET (DIP TUBE) PART # H-2-32433-4 | 5 * | P11 | H-2-32430 |
| 4 | 316L SS | 3" BLOCK, 2" INLET, 2" OUTLET (DIP TUBE) PART # H-2-32433-37 | 5 * | P11 | H-2-32430 |
| 5 | C-22 | 3" BLOCK, 2" INLET, 2" OUTLET (DIP TUBE) PART # H-2-32433-26 | 5 * | P11 | H-2-32430 |
| 6 | 316L SS | 3" BLOCK, ADDITIONAL STANDARD BLANKS TO BE MACHINED AT A LATER DATE | 5 * | P11 | H-2-32430 |
| 7 | 304L SS | 3" BLOCK, 2" INLET, 3" OUTLET PART # H-2-32433-7 | 5 * | P11 | H-2-32430 |
| 8 | 316L SS | 3" BLOCK, 2" INLET, 3" OUTLET PART # H-2-32433-40 | 5 * | P11 | H-2-32430 |
| 9 | C-22 | 3" BLOCK, 2" INLET, 3" OUTLET PART # H-2-32433-29 | 5 * | P11 | H-2-32430 |
| 4" VERTICAL CONNECTORS | | | | | |
| 10 | 304L SS | 4" BLOCK, ADDITIONAL STANDARD BLANKS TO BE MACHINED AT A LATER DATE | 5 * | P11 | H-2-32440 |

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CONNECTOR HEADS AND NOZZLES
(B-595-P-P30A)

TABLE OF CONTENTS
TECHNICAL SPECIFICATIONS

DIVISION 15 - MECHANICAL

| <u>Section</u> | <u>Title</u> | <u>Revision No.</u> |
|----------------|--|---------------------|
| 15183 | Metallic Materials and Parts Substitution (Hanford STD, HS-BS-0001) | 0 |
| 15185 | Nozzle, Remote Connector, Stainless Steel (Hanford STD, HS-BP-0018) | 0 |
| 15187 | Electrical Casting, Remote Connector (Hanford STD, HS-BP-0070) | 0 |
| 15188 | Hook Casting, Remote Connector (Hanford STD, HS-BP-0071) | 0 |
| 15189 | Hook Guide and Skirt Castings, Remote Connector, Stainless Steel (Hanford STD, HS-BP-0072) | 0 |
| 15190 | Operating Nut Casting, Remote Connector (Hanford STD, HS-BP-0073) | 0 |
| 15196 | Identification and Tagging Methods for Mechanical Equipment (Hanford STDs, HS-BS-0015 and HPS-I-2-7) | *0 |

*Specification Section Added to Previous Rev. 0 Issue

PAGE NO. 7
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

ELECTRICAL UPPER CONNECTOR SUMMARY TABLE

| DRAWING REFERENCE | UPPER CONNECTOR ASSEMBLY H-2-32400 | SPECIAL ASSEMBLIES H-2-90156 |
|---|--|---------------------------------|
| 440 PACKAGE STANDARD | 8 | |
| P06 PACKAGE STANDARD | 6 | |
| P11 PACKAGE STANDARD | 437 | 45 THERMOWELL CONNECTORS |
| P11 PACKAGE BLANK | 74 | |
| TOTAL P30 STANDARD UPPER ELECTRICAL CONNECTORS | 460 * | 50 * THERMOWELL CONNECTORS |
| TOTAL P30 BLANK UPPER ELECTRICAL CONNECTORS | 80 * | |

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SECTION 15196
IDENTIFICATION AND TAGGING METHODS
FOR MECHANICAL EQUIPMENT

HANFORD STANDARDS HS-BS-0015 AND HPS 1-2-7

PART 1 GENERAL

1.1 SUMMARY

This specification section describes the technical requirements for the design, material and fabrication of permanent and temporary identification methods applicable to manufactured or procured parts, subassemblies and assemblies.

1.2 REFERENCES

The publications listed below form a part of this specification section to the extent referenced. The publications are referred to in the text by the basic designation only.

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A13.1 1981 (Rev. 85) Scheme for the
Identification of Piping Systems

INSTRUMENT SOCIETY OF AMERICA (ISA)

ISA RP60.6 1984 Nameplates, Labels and Tags
for Control Centers, Recommended
Practice

MILITARY STANDARDS

MIL-STD-889B 1988 (Notice 2) Dissimilar Metals

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

OSHA 29 CFR 1990 Ionizing Radiation
Section 1910.96

1.3 RELATED REQUIREMENTS

(Not Used)

1.4 DEFINITIONS

(Not Used)

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

ELECTRICAL LOWER CONNECTOR SUMMARY TABLE

| TYPE OF LOWER CONNECTOR | WALL MOUNTED SIDE OUTLET | EQUIPMENT MOUNTED SIDE OUTLET | SPECIAL ASSEMBLIES |
|---------------------------------------|-----------------------------|----------------------------------|-------------------------------|
| DRAWING REFERENCE | H-2-32408 | H-2-94991 | H-2-90186 |
| 440 PACKAGE STANDARD | 8 | 0 | 3 THERMOWELL NOZZLES |
| P01 PACKAGE STANDARD | 239 | 0 | 18 THERMOWELL NOZZLES |
| P01 PACKAGE BLANK | 28 | 0 | |
| P04 PACKAGE STANDARD | 0 | 8 | |
| P05 PACKAGE STANDARD | 0 | 73 | 15 THERMOWELL NOZZLES |
| P06 PACKAGE STANDARD | 0 | 39 | 3 THERMOWELL NOZZLES |
| P08 PACKAGE STANDARD | 1 | 27 | |
| P11 PACKAGE STANDARD | 0 | 54 | |
| P16 PACKAGE STANDARD | 0 | 41 | |
| P17 PACKAGE STANDARD | 0 | 2 | |
| P24 PACKAGE STANDARD | 0 | 13 | |
| P25 PACKAGE STANDARD | 2 | 6 | |
| P31 PACKAGE STANDARD | 0 | 17 | 6 THERMOWELL NOZZLES |
| TOTAL P30 PACKAGE STANDARD NOZZLES | 260 * | 290 * | 50 * THERMOWELL NOZZLES |
| TOTAL P30 PACKAGE BLANK NOZZLES | 30 * | 0 | |

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9413155.1235

1.5 SYSTEM DESCRIPTION

(Not Used)

1.6 SUBMITTALS

Submit the following in accordance with the Vendor Drawing and Data Requirements section of the Order/Subcontract.

1.6.1 Seller shall submit Certified Material Test Reports (CMTRs). These shall indicate that materials used for the application and removal of marking on corrosion-resistant, stainless steel and some nickel-based alloys shall be free of halides and low melting-point elements to the extent specified in Paragraph 2.1.1.1 B. Written certification by the manufacturer that their product does not exceed the halide and elemental content specified in Paragraph 2.1.1.1 B is acceptable and shall preclude the necessity for acceptance test of that product.

1.6.2 Seller shall submit qualification of the processes used for permanent marking. Tools used to apply permanent marking and the resultant mark shall be in accordance with the applicable requirements in Paragraph 2.2. To preclude repeated examination of production marking (except as specified in Paragraph 2.2.4), tools and sample markings made by said tools shall be examined to determine accordance with applicable requirements. Upon successfully testing the tool on the material to be marked, the process shall be qualified by Seller Quality Assurance for production use on an Inspection/Surveillance Report (ISR).

1.7 CLASSIFICATION OF SYSTEM AND COMPONENTS

(Not Used)

1.8 PROJECT OR SITE ENVIRONMENTAL CONDITIONS

1.8.1 Climatic and Geographic Site Conditions

- | | | |
|----|--------------------------------|--------------------------|
| A. | Site Elevation | 714 feet above sea level |
| B. | Barometric Pressure | 14.3 psia |
| C. | Outside Design Temperature | |
| | 1) Maximum Design Temperature | 110°F |
| | 2) Minimum Design Temperature | -20°F |
| | 3) Wet Bulb Design Temperature | 68°F |

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PAGE NO. 5

October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734

REVISION: 1

NOZZLE SUMMARY TABLE

| NOZZLE SIZE | 2" NOZZLE | | 3" NOZZLE | | 4" NOZZLE | | 2" 3-WAY NOZZLE | | |
|---|-----------|-----------|-----------|-----------|-----------|-----------|-------------------|--------------------|--------------------|
| NOZZLE MATERIAL | CD-4MCu | C-22 | CD-4MCu | C-22 | CD-4MCu | C-22 | 304L | 316L | C-22 |
| DRAWING REFERENCE | H-2-90185 | H-2-83572 | H-2-90186 | H-2-83573 | H-2-90187 | H-2-83574 | H-2-32447 | H-2-83577 | H-2-83575 |
| P11 PACKAGE CONN. INSERT BLANKS | 0 | 0 | 0 | 0 | 0 | 0 | 30 | 25 | 59 |
| P17 PACKAGE STANDARD | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| P24 PACKAGE STANDARD | 10 | 0 | 0 | 0 | 0 | 0 | 5 | 6 | 4 |
| P31 PACKAGE STANDARD | 10 | 18 | 5 | 7 | 1 | 1 | 5 | 8 | 6 |
| P31 PACKAGE CONN. INSERT BLANKS | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 6 | 2 |
| P33 PACKAGE STANDARD | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL P30 PACKAGE STANDARD | 710 * | 115 * | 155 * | 100 * | 40 * | 30 * | 220 * | 65 * | 70 * |
| TOTAL P30 PACKAGE CONNECTOR INSERT BLANKS (PART # REFERENCE H-2-) | 0 | 0 | 0 | 0 | 0 | 0 | 60 * (32447-8) | 55 * (83577-13) | 80 * (83575-13) |

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1.8.2 Operating Environment

- | | | |
|----|--------------------------|----------------|
| A. | Normal Temperature Range | 60° to 104°F |
| B. | Design Basis Temperature | 104°F |
| C. | Relative Humidity | Not controlled |

PART 2 PRODUCTS

2.1 MATERIALS AND EQUIPMENT

2.1.1 Materials

2.1.1.1 Material Compatibility - Materials used for permanent or temporary marking or for the removal of markings shall be physically and chemically compatible with the material to which the markings will be applied or removed. The following shall be avoided:

- A. The use of dissimilar metals in permanent contact as defined in MIL-STD-889B.
- B. The use on corrosion-resistant, stainless steel and some nickel-base alloys of materials containing more than:
 - 1) one-half percent by weight of halides (chlorides and fluorides),
 - 2) one-half percent by weight of sulfur, and
 - 3) a sum total of one-half percent by weight of low melting-point elements such as cadmium, aluminum, lead, zinc and mercury.
- C. Permanent marking of critical stainless steel components using labels, tape, paint or other marking materials that could cause crevice corrosion.

2.2 FABRICATION AND MANUFACTURE

2.2.1 Requirements

2.2.1.1 Cleanliness - Surfaces to be marked shall be cleaned of oil, grease, dirt, corrosion or any other material that would adversely affect the application or adhesion of the marking.

2.2.1.2 Legibility - All markings shall be clearly legible. Color markings, including black and white, shall contrast with the color of the surface to which it is applied. Freehand lettering for the

PAGE NO. 4
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

NOZZLE SUMMARY TABLE

| NOZZLE SIZE | 2" NOZZLE | | 3" NOZZLE | | 4" NOZZLE | | 2" 3-WAY NOZZLE | | |
|------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------------|-----------|-----------|
| NOZZLE MATERIAL | CD-4MCu | C-22 | CD-4MCu | C-22 | CD-4MCu | C-22 | 304L | 316L | C-22 |
| DRAWING REFERENCE | H-2-90185 | H-2-83572 | H-2-90186 | H-2-83573 | H-2-90187 | H-2-83574 | H-2-32447 | H-2-83577 | H-2-83575 |
| 250 PACKAGE STANDARD | 31 | 5 | 6 | 2 | 7 | 0 | 0 | 1 | 0 |
| 250 PACKAGE CONN. INSERT BLANK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| 440 PACKAGE STANDARD | 21 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| P01 PACKAGE STANDARD | 466 | 7 | 75 | 13 | 10 | 0 | 140 | 7 | 0 |
| P05 PACKAGE STANDARD | 80 | 68 | 36 | 70 | 11 | 22 | 13 | 15 | 8 |
| P05 PACKAGE CONN. INSERT BLANKS | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 9 | 2 |
| P06 PACKAGE STANDARD | 19 | 2 | 9 | 0 | 0 | 0 | 18 | 0 | 4 |
| P06 PACKAGE CONN. INSERT BLANKS | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 8 |
| P08 PACKAGE STANDARD | 26 | 0 | 4 | 0 | 4 | 0 | 0 | 6 | 0 |
| P08 PACKAGE CONN. INSERT BLANKS | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 |
| P11 PACKAGE STANDARD | 31 | 4 | 2 | 2 | 1 | 1 | 21 | 13 | 39 |

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purpose of temporary marking shall be in the printed form and be uppercase (caps).

2.2.2 Permanent Identification Methods

- Type 1 Vibratory Marking
- Type 2 Die Stamping
- Type 3 Raised marking forged or cast into the surface
- Type 4 Recessed marking forged or cast into the surface
- Type 5 Electrochemical etch
- Type 6 Nameplate
- Type 7 Self-adhesive label
- Type 8 Painting
- Type 9 Packaging
- Type 10 Tagging

2.2.2.1 Type 1: Vibratory Marking - Vibrating tools shall be fitted with a carbide marking point or equivalent. Tools shall be adjusted to produce a shallow, rounded impression 0.003 to .101 inch in depth. The marking tool tip minimum radius shall be 0.005 inch. The size (height) of characters produced by vibratory marking shall be selected within the range of 1/16 to 1/2 inch.

2.2.2.2 Type 2: Die Stamping - Die stamps shall be low-stress type stamps. The minimum tip radius of the dies shall be in accordance with the following character sizes:

| Character Size (inch) | Minimum Tip Radius (inch) |
|-----------------------|---------------------------|
| 1/16 | 0.005 |
| 3/32 | 0.006 |
| 1/8 | 0.007 |
| 3/16 | 0.008 |
| 1/4 | 0.010 |
| 3/8 | 0.012 |
| 1/2 | 0.014 |

- A. Impression depth shall not exceed 0.10 inch.
- B. Die stamp marking shall be applied to a flange, an integrally-cast or forged boss or pad, the base or support of the item or other visible low-stress location.
- C. The material thickness of an item to be marked shall not be reduced by die stamping to less than the minimum specified on the component drawing or specification.

2.2.2.3 Types 3 and 4: Raised/Recessed Markings - Raised or recessed identification markings that are cast into the surface of the item

9413155.1232

PAGE NO. 3
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

HORIZONTAL AND VERTICAL CONNECTOR SUMMARY TABLE

| CONNECTOR SIZE | 2" CONNECTOR | | | 3" CONNECTOR | | | 4" CONNECTOR | | | 2" 3-WAY | | |
|--|--------------|------|------|--------------|------|------|--------------|------|------|-----------|------|------|
| CONNECTOR MATERIAL | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 |
| DRAWING REFERENCE | H-2-32420 | | | H-2-32430 | | | H-2-32440 | | | H-2-32427 | | |
| P33 PACKAGE VERTICAL BLANK | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| TOTAL P30 PACKAGE HORIZONTAL STANDARD | 340 * | 60 * | 5 * | 55 * | 5 * | 5 * | 5 * | 0 | 0 | 125 * | 10 * | 10 * |
| TOTAL P30 PACKAGE HORIZONTAL BLANK | 65 * | 20 * | 0 | 25 * | 5 * | 15 * | 10 * | 0 | 0 | 35 * | 0 | 10 * |
| TOTAL P30 PACKAGE VERTICAL STANDARD | 230 * | 45 * | 25 * | 80 * | 20 * | 5 * | 20 * | 15 * | 10 * | 115 * | 20 * | 15 * |
| TOTAL P30 PACKAGE VERTICAL BLANK | 65 * | 10 * | 0 | 55 * | 5 * | 0 | 10 * | 5 * | 0 | 10 * | 0 | 5 * |

* THE SUMMARY TOTALS ARE TYPICALLY ROUNDED TO THE NEXT HIGHEST INCREMENT OF FIVE (5)

Rev. 0

are acceptable. Recessed markings shall not reduce the material thickness of an item to less than the minimum specified on the component drawing or specification. The size of forged or cast characters called out on the drawing or specification shall only be limited by the space available, but shall in no case be less than 0.09 inch in height.

2.2.2.4 Type 5: Electrochemical Etching - The electrolyte and neutralizer used for electrochemical etching shall be compatible with the material to be marked. The depth of etching shall be no greater than 0.5 percent of the material thickness or 0.003 inch, whichever is less. The size of characters produced by electrochemical etching shall be selected within the range of 1/16 to 1/2 inch. However, the recommended minimum size is 0.1 inch to accommodate typing applications.

2.2.2.5 Type 6: Nameplates

- A. The physical requirements (e.g., material, nameplate dimensions, character size and arrangement) for metal nameplates shall either be detailed on the applicable drawing or specification; or defined by reference to an applicable nameplate standard, specification or drawing. Metal nameplates shall be corrosion-resistant. They shall contain not less than the following information:

Equipment description
Purchase order number
Equipment item number
Seller's name (if different from manufacturer)
Manufacturer's name
Manufacturer's model number
Manufacturer's serial number
Rated capacity
Size and type
Year built
Project identification

A typical metal nameplate layout is shown in Attachment A.

- B. When attached by welding, metal nameplates shall be welded in accordance with the welding requirements applicable to the item. The attachment method and location on the item of either nameplate type shall be established on the basis of stress imposed on the item. The method shall consider possible crevice corrosion between the nameplate and the item surface.
- C. When used, plastic nameplates shall be specified on the item drawing or specification in accordance with Attachment B.

PAGE NO. 2
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

HORIZONTAL AND VERTICAL CONNECTOR SUMMARY TABLE

| CONNECTOR SIZE | 2" CONNECTOR | | | 3" CONNECTOR | | | 4" CONNECTOR | | | 2" 3-WAY | | |
|------------------------------------|--------------|------|------|--------------|------|------|--------------|------|------|-----------|------|------|
| CONNECTOR MATERIAL | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 |
| DRAWING REFERENCE | H-2-32420 | | | H-2-32430 | | | H-2-32440 | | | H-2-32427 | | |
| P06 PACKAGE HORIZONTAL STANDARD | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P06 PACKAGE VERTICAL STANDARD | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 |
| P11 PACKAGE HORIZONTAL STANDARD | 312 | 32 | 0 | 48 | 5 | 1 | 4 | 0 | 0 | 114 | 7 | 7 |
| P11 PACKAGE HORIZONTAL BLANK | 49 | 18 | 0 | 18 | 2 | 12 | 6 | 0 | 0 | 29 | 0 | 7 |
| P11 PACKAGE VERTICAL STANDARD | 209 | 42 | 19 | 74 | 15 | 3 | 15 | 8 | 2 | 103 | 16 | 9 |
| P11 PACKAGE VERTICAL BLANK | 39 | 5 | 0 | 44 | 2 | 0 | 6 | 3 | 0 | 4 | 0 | 1 |
| P24 PACKAGE VERTICAL STANDARD | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 |
| P24 PACKAGE VERTICAL BLANK | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 |
| P31 PACKAGE VERTICAL STANDARD | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

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This shall include nameplate size, character size and method of attachment.

- 2.2.2.6 Type 7: Self-Adhesive Labels - Self-adhesive labels may be used for identification provided they are in accordance with the requirements specified in Paragraph 2.1.1.1. When used to mark components in systems such as piping or electrical systems, or used as regulatory marking, self-adhesive labels shall be in accordance with applicable government, society or industry standards and codes. For example:
- A. When marking a piping system, a recognized standard such as ANSI A13.1 shall be invoked on the applicable drawing/specification along with this specification section.
 - B. If labels are used to identify system or component radiation hazards, a standard such as OSHA 29 CFR Section 1910.96 shall be specified on the applicable drawing/specification along with this specification section.
- 2.2.2.7 Type 8: Painting - Paints suitable for the purpose or as specified shall be used to apply stenciled markings to items (see Paragraphs 2.1.1.1 and 2.2.1.2). Stenciled markings may be applied using a template or silkscreen. The size of the stenciled characters specified on the drawing/specification shall be selected within the range of 1/3 to 3 inches. The color and type of paint to be used shall also be in accordance with the drawing/specification. Crafted (freehand sign painted) application of marking in lieu of stenciling is acceptable with due consideration being given to the higher cost involved.
- 2.2.2.8 Type 9: Packaging - Identical items too small to be identified individually may be packaged in a box or bag marked with the item identification as shown in Paragraph 2.2.2.9 A.
- 2.2.2.9 Type 10: Tagging
- A. Tags shall be of corrosion-resistant metal. They shall be impression-stamped with not less than the following information:

Purchase order number
Purchase order item number
Equipment item number

A typical tag layout is shown in Attachment A.
 - B. Tags shall be attached to the component they identify with stainless steel wire. Tagging is done in addition to the equipment nameplate. Equipment shipped in fully-enclosed

PAGE NO. 1
October 5, 1992

HANFORD WASTE VITRIFICATION PLANT
P30 CONNECTORS, NOZZLES AND ASSOCIATED EQUIPMENT

CONTRACT: 845734
REVISION: 1

HORIZONTAL AND VERTICAL CONNECTOR SUMMARY TABLE

| CONNECTOR SIZE | 2" CONNECTOR | | | 3" CONNECTOR | | | 4" CONNECTOR | | | 2" 3-WAY | | |
|------------------------------------|--------------|------|------|--------------|------|------|--------------|------|------|-----------|------|------|
| CONNECTOR MATERIAL | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 | 304L | 316L | C-22 |
| DRAWING REFERENCE | H-2-32420 | | | H-2-32430 | | | H-2-32440 | | | H-2-32427 | | |
| 250 PACKAGE HORIZONTAL STANDARD | 21 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 250 PACKAGE HORIZONTAL BLANK | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 250 PACKAGE VERTICAL BLANK | 18 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 440 PACKAGE HORIZONTAL STANDARD | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 440 PACKAGE VERTICAL STANDARD | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P05 PACKAGE HORIZONTAL STANDARD | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P05 PACKAGE HORIZONTAL BLANK | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| P05 PACKAGE VERTICAL STANDARD | 0 | 0 | 0 | 2 | 0 | 0 | 1 | 6 | 5 | 1 | 0 | 0 |
| P05 PACKAGE VERTICAL BLANK | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* THE SUMMARY TOTALS ARE TYPICALLY ROUNDED TO THE NEXT HIGHEST INCREMENT OF FIVE (5)

Rev. 0

containers shall have the information from Attachment A clearly marked on the container exterior.

- C. Miscellaneous parts shall be tagged or marked with the equipment item number for which they are intended.
- D. Equipment which contains insulating oils, antifreeze solutions or other liquids shall be prominently tagged at every opening. Tags shall indicate the nature of the contents and precautions for shipping and storage.

2.2.3 Temporary Identification Methods

- Type A Rubber stamp and ink
- Type B Rubber roller or wheel and ink
- Type C Felt-tip marking pen
- Type D Removable self-adhesive label or tape
- Type E Label attached with removable tape
- Type F Removable tag
- Type G Packaging
- Type H Scribing tool
- Type J Paint stick
- Type K Metal tag

2.2.3.1 Inks - Inks used for all type of temporary markings including felt-tipped pens, rubber stamps, rubber roller and rubber wheel shall be in accordance with the requirements of Paragraph 2.1.1. B.

2.2.3.2 Self-Adhesive Labels and Tape - The adhesives of self-adhesive labels and tape used for temporary marking shall be in accordance with the requirements of Paragraph 2.1.1.1.

2.2.3.3 Tagging - Items not suited for other methods of identification may be tagged. Tags and attaching materials shall be compatible with the item material in accordance with Paragraphs 2.1.1.1 A and 2.1.1.1 B. Materials used for temporary identification tagging shall be selected on the same basis as for permanent identification tagging (see Paragraph 2.2.2.9).

2.2.3.4 Packaging - Packaging requirements for temporary identification shall be the same as for permanent identification (see Paragraph 2.2.2.8).

2.2.3.5 Scribing Tool - Scribing tools may be used for temporary identification during fabrication or construction provided such marking is not applied to critical surfaces such as finished, machined or sealing surfaces.

ATTACHMENT A

HWVP

October 5, 1992

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

REVISION 1

SPECIFICATION INDEX

(B-595-P-P30A)

| SPECIFICATION TITLE | WHC DOCUMENT NUMBER | HWVP NUMBER (CSI) |
|---|------------------------|----------------------|
| Metallic Materials and Parts Substitution | HS-BP-0001 | 15183 |
| Identification and Tagging Methods for Mechanical Equipment | HS-BS-0015 | 15196 |
| Nozzle, Remote Connector, Stainless Steel | HS-BP-0018 | 15185 |
| Electrical Casting, Remote Connector | HS-BP-0070 | 15187 |
| Hook Casting, Remote Connector | HS-BP-0071 | 15188 |
| Hook Guide and Skirt Castings, Remote Connector, Stainless Steel | HS-BP-0072 | 15189 |
| Operating Nut Casting, Remote Connector | HS-BP-0073 | 15190 |

Rev. 0

2.2.3.6 Removal of Temporary Marking - All temporary marking shall be removed from stainless steel and corrosion-resistant material surfaces prior to fabrication operations which render markings inaccessible, prior to heat treatment and prior to post-manufacturing acceptance or post-installation acceptance, as appropriate. Ink markings and residue from tapes shall be removed using new or re-distilled alcohol or acetone. The removal of temporary markings shall assure cleanliness of the material and be in accordance with applicable cleanliness acceptance criteria.

2.2.4 Testing

2.2.4.1 Visual Inspection - Item surfaces and marking shall be visually inspected to determine conformance with the applicable requirements specified in Paragraphs 2.2.1.1 and 2.2.1.2.

PART 3 EXECUTION

(Not Used)

ATTACHMENT A

HWVP

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

October 5, 1992

REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|--|--------------|
| H-2-90176 | 2 | 0 | Hook, 4" Connector, PUREX/REDOX Type, Investment Casting | H-2-32440 |
| H-2-90177 | 1 | 5 | Hook, Electrical Connector, PUREX/REDOX Type, Investment Casting (DRAFT) | H-2-32400 |
| H-2-90177 | 2 | 0 | Hook, Electrical Connector, PUREX/REDOX Type | H-2-32400 |
| H-2-90181 | 1 | 0 | Yoke, Electrical Connector | H-2-32400 |
| H-2-90185 | 1 | 3 | Male Nozzle, 2" PUREX | Top Assembly |
| H-2-90185 | 2 | 2 | Male Nozzle, 2" PUREX | Top Assembly |
| H-2-90186 | 1 | 3 | Male Nozzle, 3" PUREX | Top Assembly |
| H-2-90186 | 2 | 1 | Male Nozzle, 3" PUREX | Top Assembly |
| H-2-90187 | 1 | 2 | Male Nozzle, 4" PUREX | Top Assembly |
| H-2-90187 | 2 | 1 | Male Nozzle, 4" PUREX | Top Assembly |
| H-2-94991 | 1 | 0 | Assembly, Lower Electrical Equipment Receptacle, PUREX Type | H-2-32401 |
| H-2-94992 | 1 | 0 | Assembly, Electrical Conduit Plug Housing, PUREX Type | H-2-32400 |
| | | | | |

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ATTACHMENT A

EXHIBIT 1. NAMEPLATE LAYOUT (TYPICAL)

| | |
|-----------------------|--------------|
| P.O. NUMBER | ITEM NUMBER |
| SERIAL NUMBER | MODEL NUMBER |
| EQUIPMENT DESCRIPTION | |
| MANUFACTURED BY | |
| SIZE | TYPE |
| RATED CAPACITY | YEAR BUILT |
| PROJECT | |

EXHIBIT 2. TAG LAYOUT (TYPICAL)

| |
|-----------------------|
| P.O. NUMBER |
| P.O. ITEM NUMBER |
| EQUIPMENT ITEM NUMBER |

ATTACHMENT A

HWVP

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

October 5, 1992

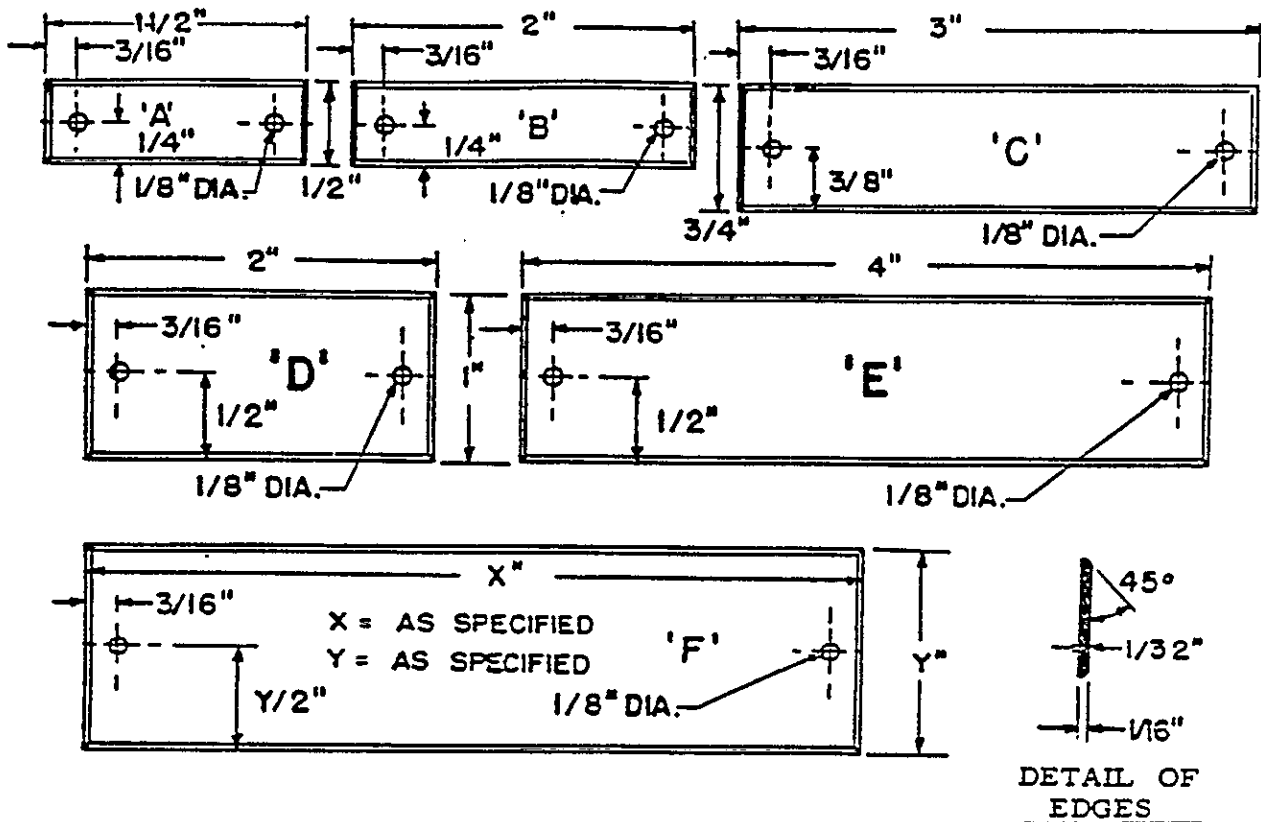
REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|--|-------------------------------------|
| H-2-83575 | 2 | 0 | Details, 2" 3-Way Nozzle (PRELIMINARY) | Top Assembly |
| H-2-83577 | 1 | 0 | Details and Assembly, 2" 3-Way Nozzle (PRELIMINARY) | Top Assembly |
| H-2-83577 | 2 | 0 | Details, 2" 3-Way Nozzle (PRELIMINARY) | Top Assembly |
| H-2-90152 | 1 | 3 | Details, Electrical Connector PUREX/REDOX Type | H-2-32400 H-2-94991 H-2-94992 |
| H-2-90156 | 1 | 4 | Assembly, Vertical Thermowell Single & Double, 3" Connector | Top Assembly |
| H-2-90156 | 2 | 1 | Assembly, Vertical Thermowell Single & Double, 3" Connector (SPL) | Top Assembly |
| H-2-90156 | 3 | 1 | Assembly, Vertical Thermowell Single & Double, 3" Connector (SPL) | Top Assembly |
| H-2-90157 | 1 | 3 | Detail & Assy, Single-Double Thermowell Extension, 3" Connector | H-2-90156 |
| H-2-90157 | 2 | 1 | Details, Thermowell Adapter Rings, 3" Connector | H-2-90156 |
| H-2-90157 | 3 | 0 | Details & Assembly, Single-Double Thermowell Extension, 3" Connector (SPL) | H-2-90156 |
| H-2-90174 | 1 | 6 | Hook, 2" Connector, PUREX/REDOX Type (DRAFT) | H-2-32420 H-2-32427 |
| H-2-90174 | 2 | 0 | Hook, 2" Connector, PUREX/REDOX Type (DRAFT) | H-2-32420 H-2-32427 |
| H-2-90175 | 1 | 5 | Hook, 3" Connector, PUREX/REDOX Type (DRAFT) | H-2-32430 H-2-90156 |
| H-2-90175 | 2 | 0 | Hook, 3" Connector, PUREX/REDOX Type (DRAFT) | H-2-32430 H-2-90156 |
| H-2-90176 | 1 | 4 | Hook, 4" Connector, PUREX/REDOX Type, Investment Casting | H-2-32440 |

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Rev. 0

ATTACHMENT B



3/32" SAMPLE 7/32" SAMPL
1/8" SAMPLE 1/4" SAMP
5/32" SAMPLE 5/16" SAM

ACTUAL LETTER SIZES

NAMEPLATE
SIZE

A & B
C
D & E
F

RECOMMENDED
LETTER SIZE

5/32"
3/16"
7/32"
As Specified

ATTACHMENT A

HWVP

October 5, 1992

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|---|--------------------------|
| H-2-68220 | 2 | 6 | Skirt, Horizontal 4" Connector, PUREX/REDOX Type | Section 15189, H-2-32440 |
| H-2-68221 | 1 | 9 | Skirt, Vertical 4" Connector, PUREX/REDOX Type | Section 15189, H-2-32440 |
| H-2-68222 | 1 | 9 | Yoke, Electrical Connector, PUREX/REDOX Type | H-2-32400 |
| H-2-68222 | 2 | 8 | Yoke, Electrical Connector, PUREX/REDOX Type | H-2-32400 |
| H-2-68223 | 1 | 9 | Operating Screw Plate, Electrical Connector, PUREX/REDOX Type | H-2-32400 |
| H-2-68224 | 1 | 7 | Wall Receptacle Housing Electrical Connector PUREX/REDOX type | H-2-32408 |
| H-2-68224 | 2 | 6 | Wall Receptacle Housing Electrical Connector PUREX/REDOX Type | H-2-32408 |
| H-2-68225 | 1 | 8 | Equipment Receptacle Housing, Electrical Connector, PUREX/REDOX Type | H-2-94991 |
| H-2-68225 | 2 | 6 | Equipment Receptacle Housing, Electrical Connector, PUREX/REDOX Type | H-2-94991 |
| H-2-68226 | 1 | 10 | 1" & 2" Conduit Plug, Housing, Electrical Connector, PUREX/REDOX Type | H-2-94992 |
| H-2-68226 | 2 | 7 | 1" & 2" Conduit Plug, Housing, Electrical Connector, PUREX/REDOX Type | H-2-94992 |
| H-2-83572 | 1 | 0 | Male Nozzle, 2" PUREX/HWVP (PRELIMINARY) | Top Assembly |
| H-2-83573 | 1 | 0 | Male Nozzle, 3" PUREX/HWVP (PRELIMINARY) | Top Assembly |
| H-2-83574 | 1 | 0 | Male Nozzle, 4" PUREX/HWVP (PRELIMINARY) | Top Assembly |
| H-2-83575 | 1 | 0 | Details and Assembly, 2" 3-Way Nozzle (PRELIMINARY) | Top Assembly |

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Rev. 0

ATTACHMENT B (continued)

NOTES:

1. Unless otherwise specified, nameplate material shall be laminated plastic stock, 1/8-inch thick. Surface shall be white. Core shall be black.
2. Nameplate edges shall be beveled in accordance with the figure. They shall be smooth and without burrs. Letters shall be sharp and clear, similar to the style depicted in the figure.
3. 4-40 x 3/8 binding head self-tapping machine screws, pull-stem rivets, 4-40 machine screws or 1/8-inch diameter drive rivets shall be used to fasten nameplates. Fastener materials shall be compatible with base materials in accordance with equipment specifications. Contact adhesive or silicon adhesive may be used as an alternative fastening method where screws/rivets are not desirable.
4. The nameplate's usable area, letter size and spacing shall be in accordance with ISA RP60.6, Appendices A-2 and A-3.

ATTACHMENT A

HWVP

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

October 5, 1992

REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|---|---|
| H-2-68210 | 1 | 9 | Operating Nut, 3" Connector, PUREX/REDOX Type | Section 15190, H-2-32430 H-2-90156 |
| H-2-68211 | 1 | 10 | Operating Nut, 4" Connector, PUREX/REDOX Type | Section 15190, H-2-32440 |
| H-2-68214 | 1 | 8 | Skirt, Horizontal 2" Connector, PUREX/REDOX Type | Section 15189, H-2-32420 H-2-32427 |
| H-2-68214 | 2 | 2 | Skirt, Horizontal 2" Connector, PUREX/REDOX Type | Section 15189, H-2-32420 H-2-32427 |
| H-2-68215 | 1 | 7 | Skirt, Vertical 2" Connector, PUREX/REDOX Type | Section 15189, H-2-32420 H-2-32427 |
| H-2-68215 | 2 | 1 | Skirt, Vertical 2" Connector, PUREX/REDOX Type | Section 15189, H-2-32420 H-2-32427 |
| H-2-68218 | 1 | 8 | Skirt, Horizontal 3" Connector, PUREX/REDOX Type | Section 15189, H-2-32430 |
| H-2-68218 | 2 | 7 | Skirt, Horizontal 3" Connector, PUREX/REDOX Type | Section 15189, H-2-32430 |
| H-2-68219 | 1 | 11 | Skirt, Vertical 3" Connector, PUREX/REDOX Type | Section 15189, H-2-32430 H-2-90156 |
| H-2-68220 | 1 | 7 | Skirt, Horizontal 4" Connector, PUREX/REDOX Type | Section 15189, H-2-32440 |

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ATTACHMENT A

HWVP

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

October 5, 1992

REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|---|--|
| H-2-3808 | 1 | 16 | Tie Rod Detail, Hanford & PUREX/REDOX Type | H-2-32420 H-2-32427 H-2-32430 H-2-32440 |
| H-2-32400 | 1 | 10 | Assembly, Upper Electrical Wall & Equipment Connector | Top Assembly |
| H-2-32400 | 2 | 1 | Assembly, Upper Electrical Wall & Equipment Connector | Top Assembly |
| H-2-32408 | 1 | 1 | Assembly, Wall Type Electrical Connector | Top Assembly |
| H-2-32420 | 1 | 9 | Assembly, Horizontal and Vertical 2" Connector | Top Assembly |
| H-2-32420 | 2 | 0 | Assembly, Horizontal and Vertical 2" Connector (SPL) | Top Assembly |
| H-2-32420 | 3 | 1 | Assembly, Horizontal and Vertical 2" Connector (SPL) | Top Assembly |
| H-2-32421 | 1 | 23 | Details, 2" Connector Installation | H-2-32420 H-2-32427 |
| H-2-32423 | 1 | 10 | Details, Connector Blocks, 2" Connectors | H-2-32420 H-2-32427 |
| H-2-32423 | 2 | 10 | Details, Connector Blocks, 3-Way 2" Connectors | H-2-32420 H-2-32427 |
| H-2-32423 | 3 | 0 | Details, Connector Blocks, 2" Connectors | H-2-32420 H-2-32427 |
| H-2-32427 | 1 | 8 | Horizontal and Vertical 3-Way, Type 2" Connector | Top Assembly |
| H-2-32427 | 2 | 3 | Horizontal and Vertical 3-Way, Type 2" Connector | Top Assembly |
| H-2-32430 | 1 | 8 | Assembly, Horizontal and Vertical Connector, 3" Connector | Top Assembly |
| H-2-32430 | 2 | 2 | Assembly, Horizontal and Vertical Connector, 3" Connector (SPL) | Top Assembly |

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ATTACHMENT A

HWVP

P30A CONNECTORS AND NOZZLES SPECIFICATION AND DRAWING LIST

CONTRACT: 845734

October 5, 1992

REVISION 1

| DRAWING | SHT | REV | TITLE | REFERENCE |
|-----------|-----|-----|---|--|
| H-2-32431 | 1 | 16 | Details, 3" Connector Installation | H-2-32430 H-2-90156 |
| H-2-32433 | 1 | 10 | Details, Connector Blocks, 3" Connectors | H-2-32430 H-2-90156 |
| H-2-32433 | 2 | 12 | Details, Connector Blocks, 3-Way 3" Connectors | H-2-32430 H-2-90156 |
| H-2-32433 | 3 | 0 | Details, Connector Blocks, 3" Connectors | H-2-32430 H-2-90156 |
| H-2-32440 | 1 | 8 | Assembly, Horizontal and Vertical Connector, 4" Connector | Top Assembly |
| H-2-32441 | 1 | 19 | 4" Connector Details | H-2-32440 |
| H-2-32443 | 1 | 10 | Details, Connector Blocks, 4" Connectors | H-2-32440 |
| H-2-32443 | 2 | 0 | Details, Connector Blocks, 4" Connectors | H-2-32440 |
| H-2-32447 | 1 | 11 | Details and Assembly, Stainless Steel 2" 3-Way Connector Nozzle | Top Assembly |
| H-2-68205 | 1 | 12 | Hook Guide, 2" Connector, PUREX/REDOX Type | Section 15189, H-2-32420 H-2-32427 |
| H-2-68206 | 1 | 11 | Hook Guide, 3" Connector, PUREX Type | Section 15189, H-2-32430 H-2-90156 |
| H-2-68207 | 1 | 11 | Hook Guide, 4" Connector, PUREX Connector | Section 15189, H-2-32440 |
| H-2-68209 | 1 | 8 | Operating Nut, 2" Connector, PUREX/REDOX Type | Section 15190, H-2-32420 H-2-32427 |

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